

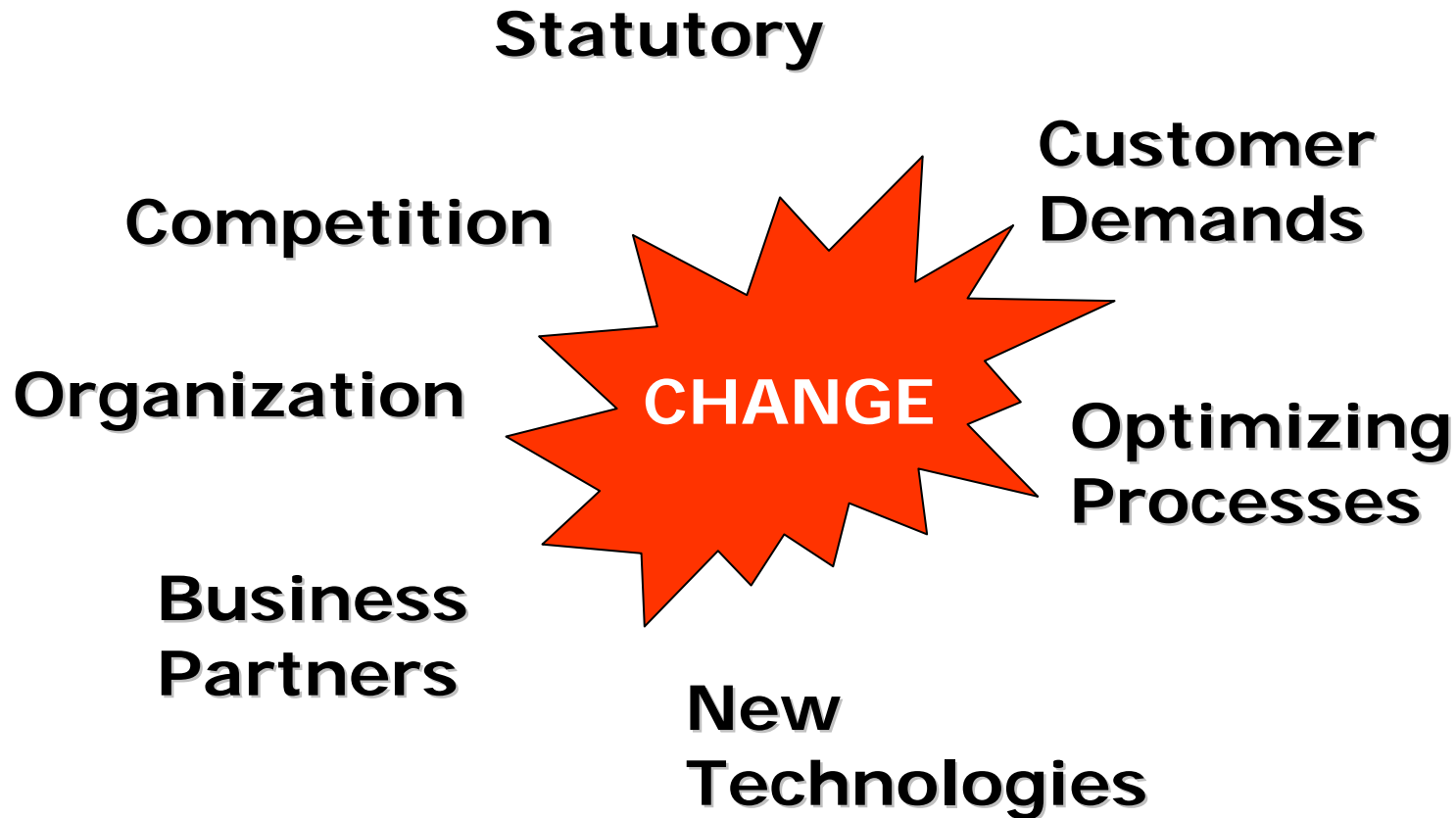


Department of Defense
Office of the Under Secretary of Defense (Comptroller)

**Service-Oriented Architecture Supporting
SFIS Adoption Strategy**

Financial Management Transformation Team

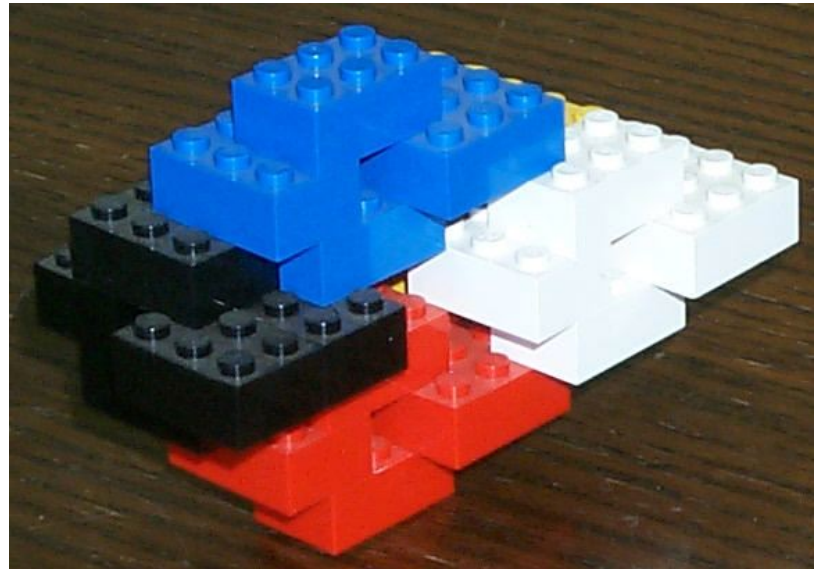
Business Constant: Change



A Business is Never STATIC

What is Service-Oriented Architecture?

- Access software via discoverable, *loosely coupled* Services
- Users can compose Services into business processes that are also Services

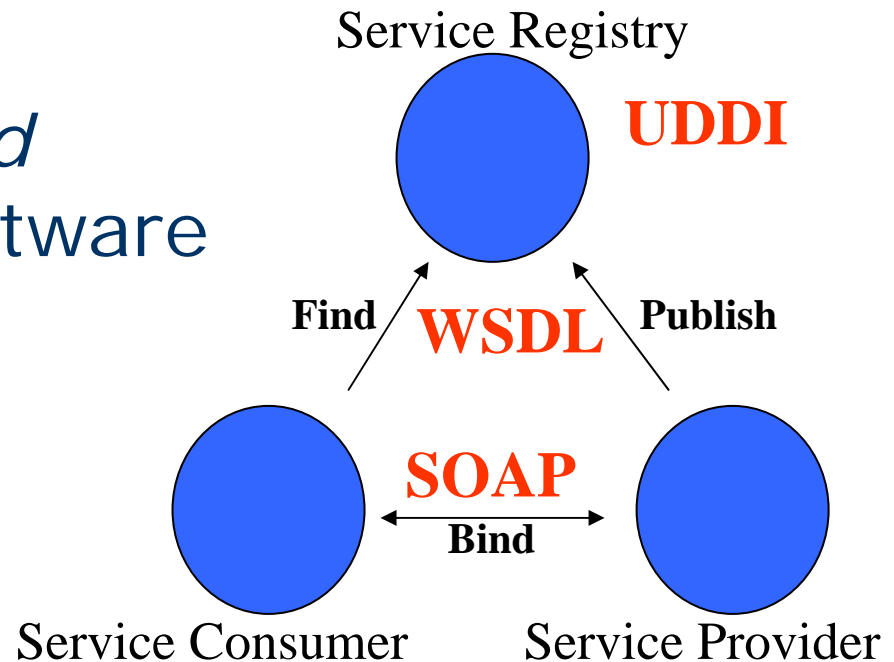


Service Orientation...the Next Big Thing?

Approach	Timeframe	Programming Model	Business Motivations
Mainframe timesharing	1960s –1980s	Procedural (COBOL)	Automated business
Client/server	1980s-1990s	Database (SQL) and fat client (PowerBuilder, Visual Basic)	Computing power on the desktop
n-Tier/Web	1990s-2000s	Object-oriented (Java, COM)	Internet/eBusiness
Service orientation	2000s	Service-oriented (SOAP, WSDL, UDDI)	Business agility

The Difference is Web Services

- *Standards-based* interfaces to software functionality



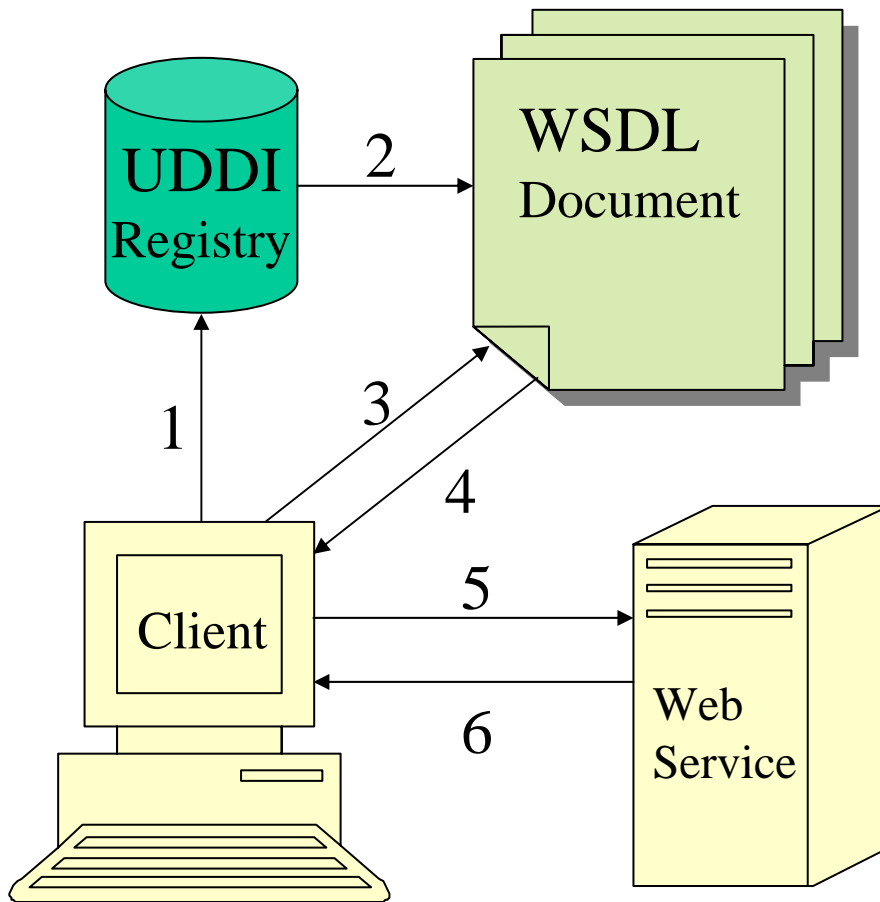
Service-Oriented Architecture...

- Business-oriented, loosely coupled Services
- Composable business processes
- Control in the hands of business users
- Flexible IT providing business agility



Sounds good, but how does it work?

Web Services: How It Works



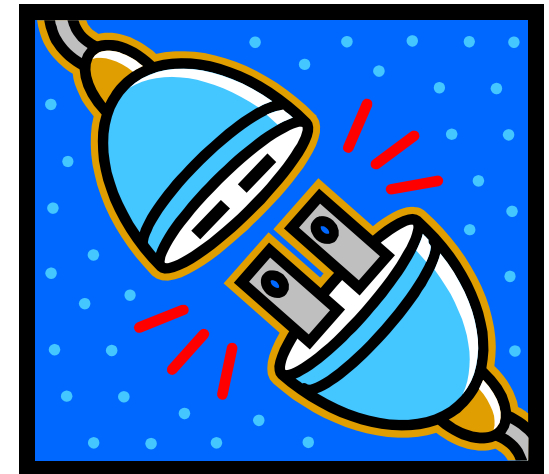
- 1. Client queries registry to locate service.
- 2. Registry refers client to WSDL document.
- 3. Client accesses WSDL document.
- 4. WSDL provides data to interact with Web service.
- 5. Client sends SOAP-message request.
- 6. Web service returns SOAP-message response.

Web Services - Example

- Concept:
 - UDDI
 - WSDL
 - SOAP
 - HTTP, SMTP, FTP
 - Schema (DTD, XSD)
 - XML
 - Content
- Practical Examples:
 - Address Directory
 - Order Form
 - Envelope
 - Mailperson
 - Language Structure
 - Vocabulary
 - Order Content

Making Agility Work: Loose Coupling

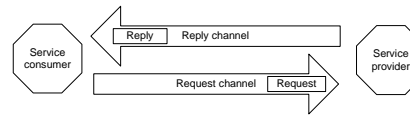
- *Coupling* – the level of common knowledge necessary in a distributed computing exchange
- *Tight coupling* – one participant must have detailed knowledge about the other participant
- *Full decoupling* – the two participants need have no knowledge about each other in order to interact
- *Loose coupling* – the two participants may have specific, limited knowledge about each other



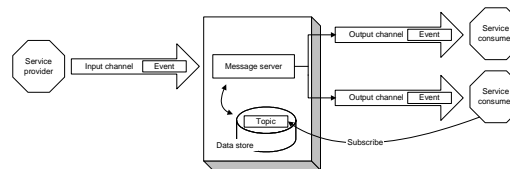
Invocation Mechanisms in SOA

- SOA is more flexible than client/server – supports multiple invocation mechanisms

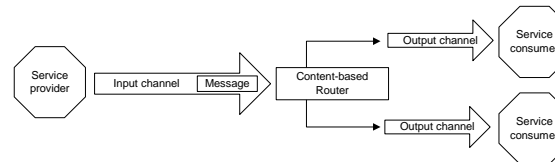
- Request/Reply



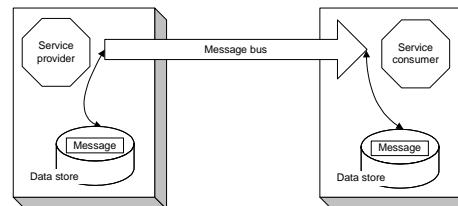
- Publish/Subscribe



- Routed Events

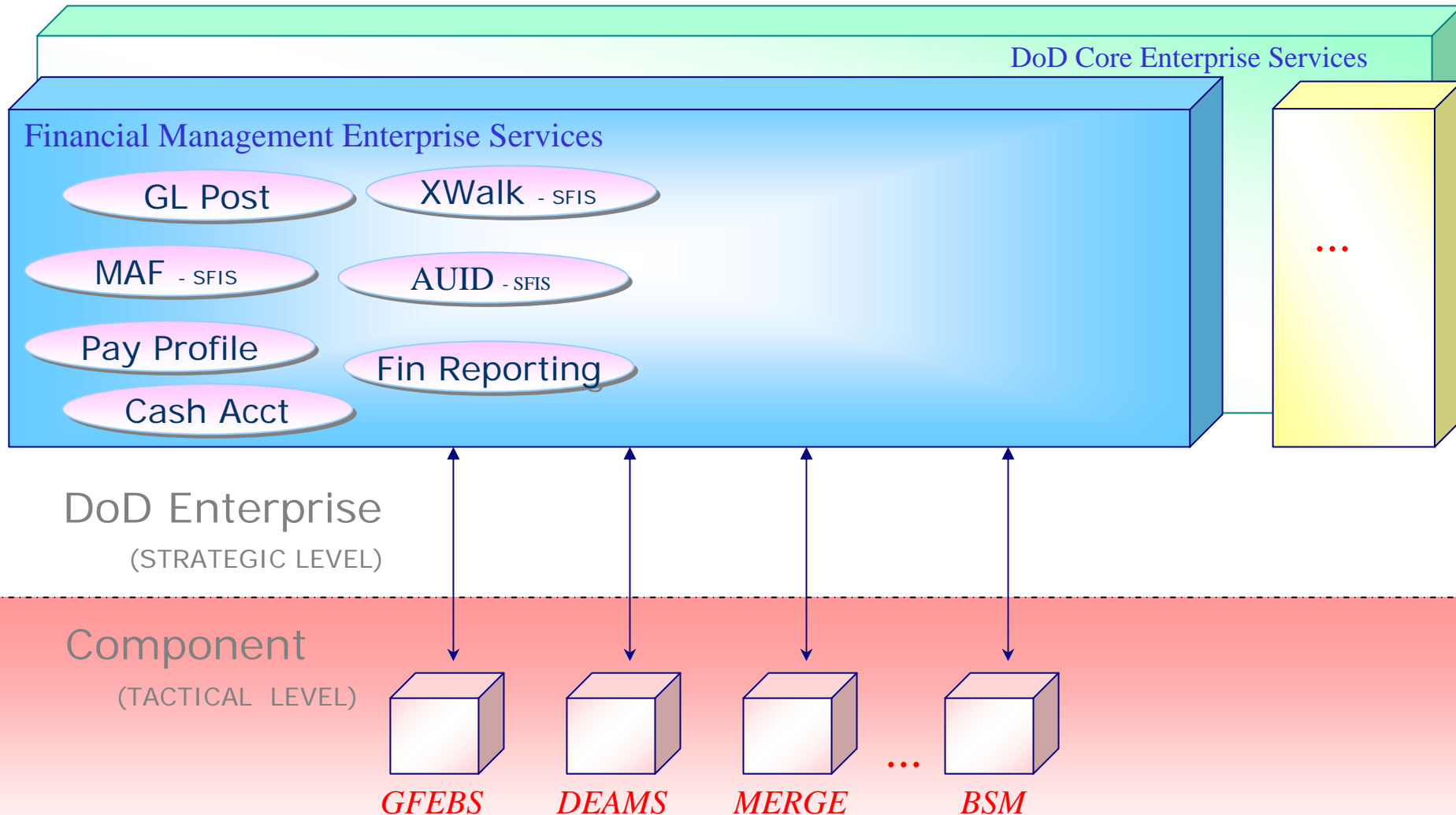


- Reliable Messaging



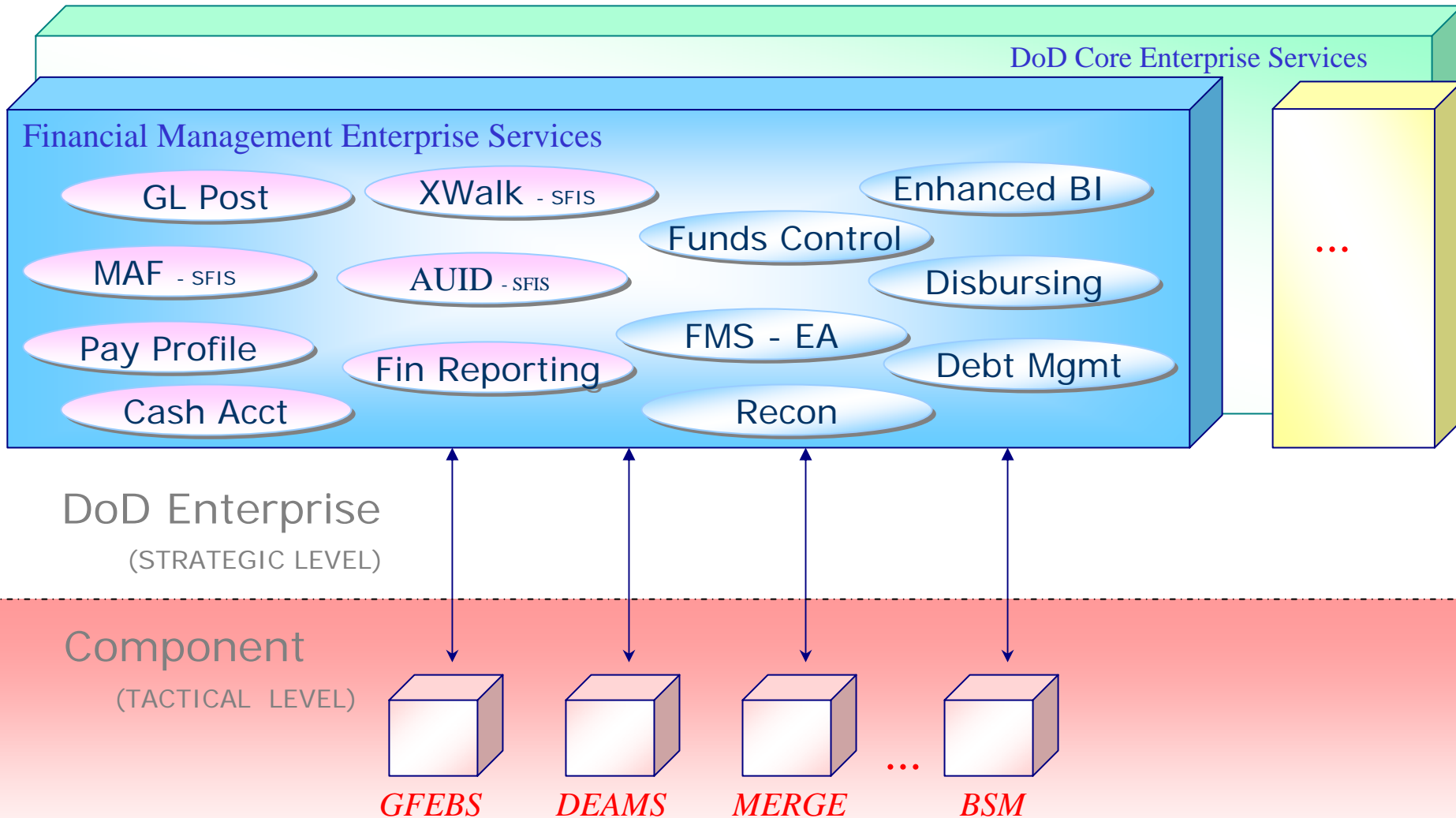
Services-Oriented Architecture

Applied - Initial Implementation



Services-Oriented Architecture

Conceptual - Future Expansion



Corporate General Ledger Data Submission Rules

- All business systems must provide visibility at the detail business event transaction level utilizing SFIS data.
- Business systems which include general ledger functionality that:
 - have been certified SFIS compliant*
 - have the capability to facilitate automated reach back (drill down) visibility to detail transactional details

may provide summary accounting information to BEIS.

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Acknowledgements:



ZapThink is an industry analysis firm focused exclusively on XML, Web Services, and Service-Oriented Architectures.

Brand Niemann
Enterprise Architecture Team
Office of Environmental Information
U.S. Environmental Protection Agency